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APPLICATION NUMBER: ***60/546,006***
FILING DATE: ***February 18, 2004***

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

INVENTOR(S)

Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
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[ ] *Additional inventors are being named on the ___separately numbered sheets attached hereto.*

TITLE OF THE INVENTION (280 characters max)

MASS RESCUE AND EVACUATION SYSTEM FOR HIGH-RISE BUILDINGS TWO BALANCED CABINS AND A FAN DESCENDER

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ENCLOSED APPLICATION PARTS (*check all that apply*)

[X] Specification (includes drawings) *Number of Pages* 5

[ ] CD(s), Number

[X] Drawing(s) *Number of sheets* 13

[ ] Other (specify)

[ ] Application Data Sheet. See 37 CFR 1.76

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)

[ ] Applicant claims small entity status. See 37 CFR 1.27.

[X] A check or money order is enclosed to cover the filing fees

[X] The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 01-0035

[ ] Payment by credit card. Form PTO-2038 is attached.

FILING FEE AMOUNT ($): $160.00

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

[X] No.

[ ] Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE Jay S. Cinamon

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Date February 18, 2004

REGISTRATION NO. (*if appropriate*) 24,156

Docket Number: 206,455

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

MASS RESCUE AND EVACUATION SYSTEM FROM HIGH – RISE BUILDINGS BY TWO BALANCED CABINS AND A FAN DESCENDER

1. Background

During a mass rescue operation from high rise buildings in case of fire or other emergencies, there is no effective solution that also enables the transportation upwards, at the same time, of rescue and fire fighting teams with their equipment.

In such an event the building is usually disconnected from electricity.

The people trapped in the building are in panic, and the rescue system must be simple, safe, reliable and relaxing as much as possible, under the circumstances.

The system has to be suitable also to disabled people, children and wounded.

2. The Patent

The patent is based on 2 cabins which balance each other, connected to rope drums in the required length and in counter- winding, installed on the same shaft, so that when one cabin goes down, the other goes up.

The traveling speed control is executed by a fan descender, designed to enable a controlled speed according to the designed cabin capacity.

SKETCH A

2.1 The load of the people going down enables the lifting of the counter cabin with a capacity limited to lifting rescue and communication equipment, first aid and medical crews and equipment, firemen etc.

Accessories and components of the lifting machine.

2.1.1 A fan descender's speed control: Carried out by reducing the air flow or by changing the blades angle.

2.1.2 A rope arrangement device, for proper arrangement of the ropes on the drums.

2.1.3 A position indicator of the cabin through a rotation counter on the shaft, indicating the floor, height or length.

2.1.4 A ratchet with a manual gear , enabling manually the winding, braking and releasing of the drums, the accuracy of braking and the equalizing of the rope lengths.

2.1.5 A clutch that enables the separation of the 2 drums, for initial lowering and equaling the lengths of the ropes.

2.1.6 Guiding ropes drums with manual tension arrangements.

2.1.7 Speed governor for preventing over speed of the release rope.

2.1.8 Wireless communication equipment.

2.1.9 Anchoring and release devices for the cabins.

2.2 For an alternative traction solution , instead of the two drums – see section 7 hereunder.

3. Operation options

The system can be operated in several applications:

3.1 Roof installation for vertical decent

Both cabins are moving vertically alongside the building, suspended on the lifting rope and guided by two guiding ropes or permanent rails.

SKETCH B

3.1.1 Mode of operation

In case of rescue and evacuation, the distancing arm will come outside the building line and the guiding ropes will descend with the tensioning weights downward.

SKETCH C

The ropes will be anchored in pre - fixed points. The tensioning of the ropes will be done from the system on the roof.

Further to the anchoring of the guiding ropes, the folded cabins will be brought to their operational configuration and be ready to the entrance of people.

The entrance of people to the cabin will take place in the secured zone when the cabin is stabilized.

Cabin no. 1 is loaded and released for descent, cabin no. 2 stays up and is loaded when cabin no.1 reaches the lower station, then the 2 drums are combined together.

The cabin climbing up and the cabin descending, loading at the top and unloading at the ground level, simultaneously.

Inside the cabins a wireless communication system and an emergency lighting will be installed.

In this configuration it is possible to activate a safety gear on the guiding ropes.

In the vertical option it is possible to stop in intermediate floors according to the position indicator in the cabin or the markings on the ropes (by the rescue teams).

It will be necessary to arrange suitable attachment devices in the intermediate floors designated for stopping.

3.1.2 The cabins

The cabins will be made of aluminum floor and ceiling or rigid plastic material.

The floor and ceiling will be connected by webbing stripes and the walls will be made of PVC cloth.

During storage the cabins are folded (ceiling to floor), when the ceiling is lifted the cabin is fully stretched.

Windows will be installed in the PVC walls and the closure of the entrance will be by zippers.

An emergency lighting will be installed in the cabins, as well as a wireless communication system.

The cabin will be attached to the ropes in the upper frame, as well as the guidance shoes for the guidance ropes.

3.2 Diagonal decent - roof installation

Both cabins are descending diagonally, keeping distant from the building as planned.

SKETCH D

The advantage in this alternative is the immediate keeping distant from the building and from fire in the lower floors.

The mode of operation is identical to the vertical descent alternative.

The anchorage of the guiding ropes is at planned points far from the building.

3.3 Installation at permanent lift shafts

The rescue cabins can be permanently installed in a lift shaft, one cabin at the top and the other at the bottom.

The cabins can move on permanent guide rails or guiding ropes.

The operation is immediate and safe, and it is possible to control the speed using a conventional speed governor.

In this alternative it is very easy to stop at intermediate stations.

For this installation a separate fire protected lift shaft is needed, which matches the size of the cabins.

3.4 Installation at existing lifts shafts

This alternative takes advantage of the existing lift shafts.

Both rescue cabins are folded at the top of the lift shaft and use the same guide rails as the building lifts.

It is necessary to design in advance the lowering of the permanent lifts to the bottom and with additional space at the shaft's ceiling.

The lowest rescue and evacuation level is depending on the lowest descent level of the permanent lifts.

This installation is slightly more complex and requires a careful operation, but with the gain of using the existing lift shafts for rescue purposes.

SKETCH E

3.5 Vertical operation from the lower level

It is possible to place the rescue system and the cabins in the lower level of the building.

It is also possible to store the cabins in another location, e.g. a fire brigade station, and bring it to the building in state of emergency (economizing the total number of rescue cabins needed).

Mode of operation (see sketch below).

At the initial position, one of the ropes is spread to its full length on a sheave placed on the building's roof.

One side is connected to the drum and the second side – to the first cabin (or waits to be connected to the cabin in case the cabin is brought from its storage location).

The rope from the second drum is spread as well on the roof sheave but attached to a weight.

The release of the fan descender causes the descent of the weight and the lifting of the first cabin upwards.

This situation immediately enables the lifting of emergency and communication equipment, as well as rescue teams (according to the weight's size).

When the weight reaches down, it is released and the rope is attached to the second cabin, creating the ordinary pattern of a climbing cabin / descending one.

This situation enables the operation and control by the rescue team, avoiding the need of any operation by the people rescued.

SKETCH F

4. Protection against debris

In external installations where protection against debris is vital, the cabins will be rigid, made of half – armored material (such as polycarbonate on the metal frame).

Such rigid cabins can be permanently connected to the system, or stored at the building (enabling easy installation) or stored at a fire – brigade station.

The objective is to have cabins with a uniform size, suitable and interchangeable in all installations.

5. Damping the ropes vibrations

5.1 Guiding ropes – The guiding ropes will be air – spec. or galvanized traction ropes, all - weather proof.

In order to avoid vibrations in installations above a certain height ("the wire effect"), the connection of the guiding ropes – at one end – will be of a tension + damping type.

5.2 Balancing ropes

In high installations and in a traveling speed over 3 meters per second, both cabins will be connected at their base to a rope with a tensioning + damping sheave.

The sheave is fixed with a restricted vertical movement at the bottom.

SKETCH G

6. Permanent rail

6.1 In installations where a more stable travel is required, it is possible to move the cabins along a permanent rail.
6.2 One rail's beam serves 2 cabins and is attached to the building all along its height.

The solution suggested is an H beam, where on each flange a cage is moving by cylindrical guiding shoes.
The attachment of the cabins to the rail is designed for quick installation at the bottom.

SKETCH H

A progressive safety device actuated - by a torn or slack suspension rope – on the two sides of the rail (similar to the safety device of electrical traction elevators).

The safety device will be installed in the cabin or in under its floor.

SKETCH I

7. Moving the rescue cabins by a traction sheave

Instead of hanging the cabins on two separate rope drums it is possible to use one rope wrapped 540 deg. (or close to it) on a sheave with a semi - circular groove, or on one of the common groove types for electrical traction elevators.
The sheave is installed on the air- fan's shaft and is connected directly or through a transmission to the fan descender.

SKETCH J

The traction is calculated according to the empty and full modes of the cabin.

SKETCH K

This device can be installed on the roof or in the bottom of the building (see sketches).
The cabins can be stored on the roof, connected or disconnected, or can be stored in another location (in the building or out of it, e.g. in a fire brigade station).
In a case that cabins are brought by the rescue team, it is required to lift the first cabin by a weight installed permanently on the roof.

A rail installation operated from the roof – see sketch L.
A rail installation operated from ground level using the a.m. initial weight- see sketch M.

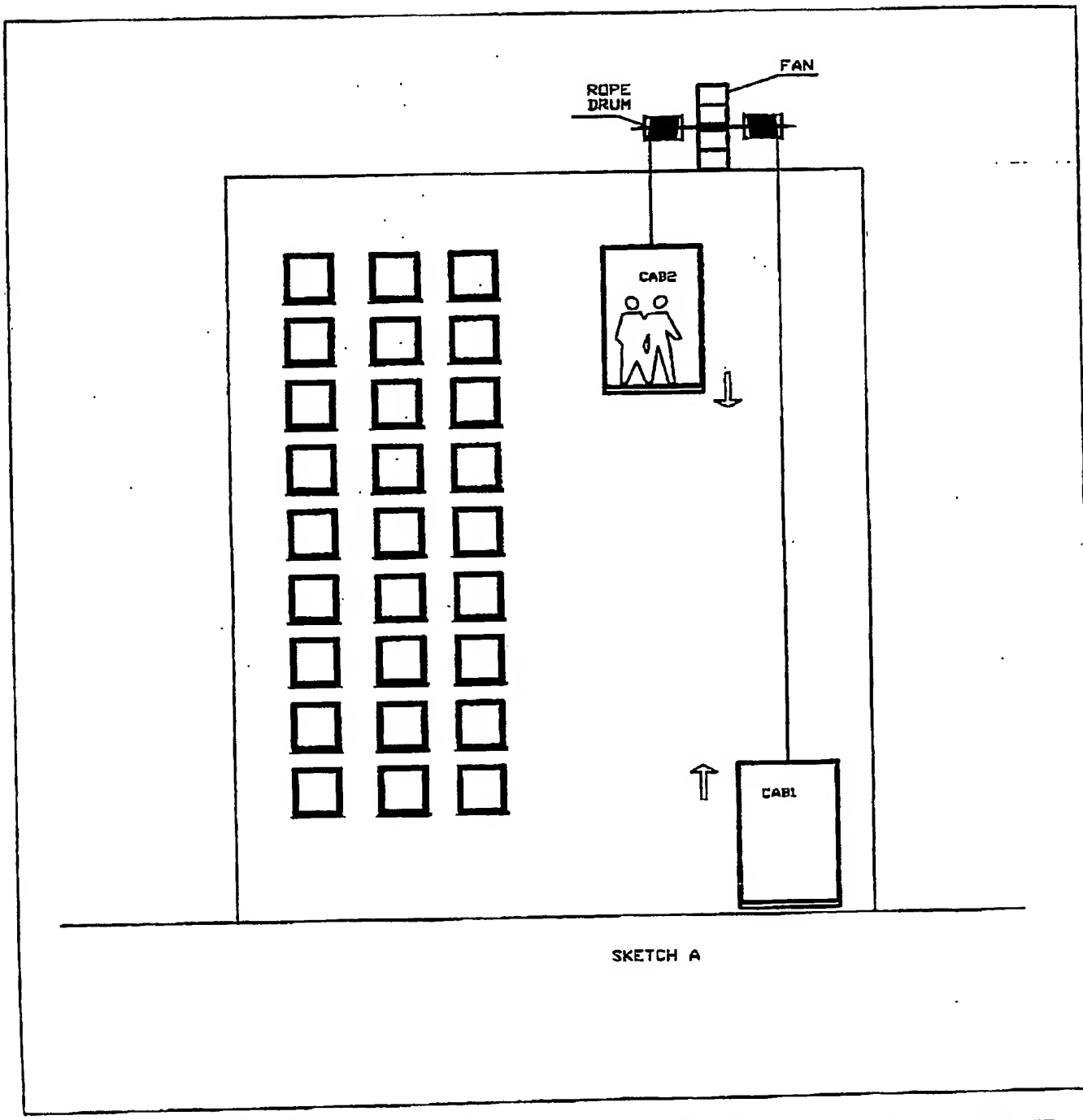
8. The communication system

The communication between the various levels of operation is vital.

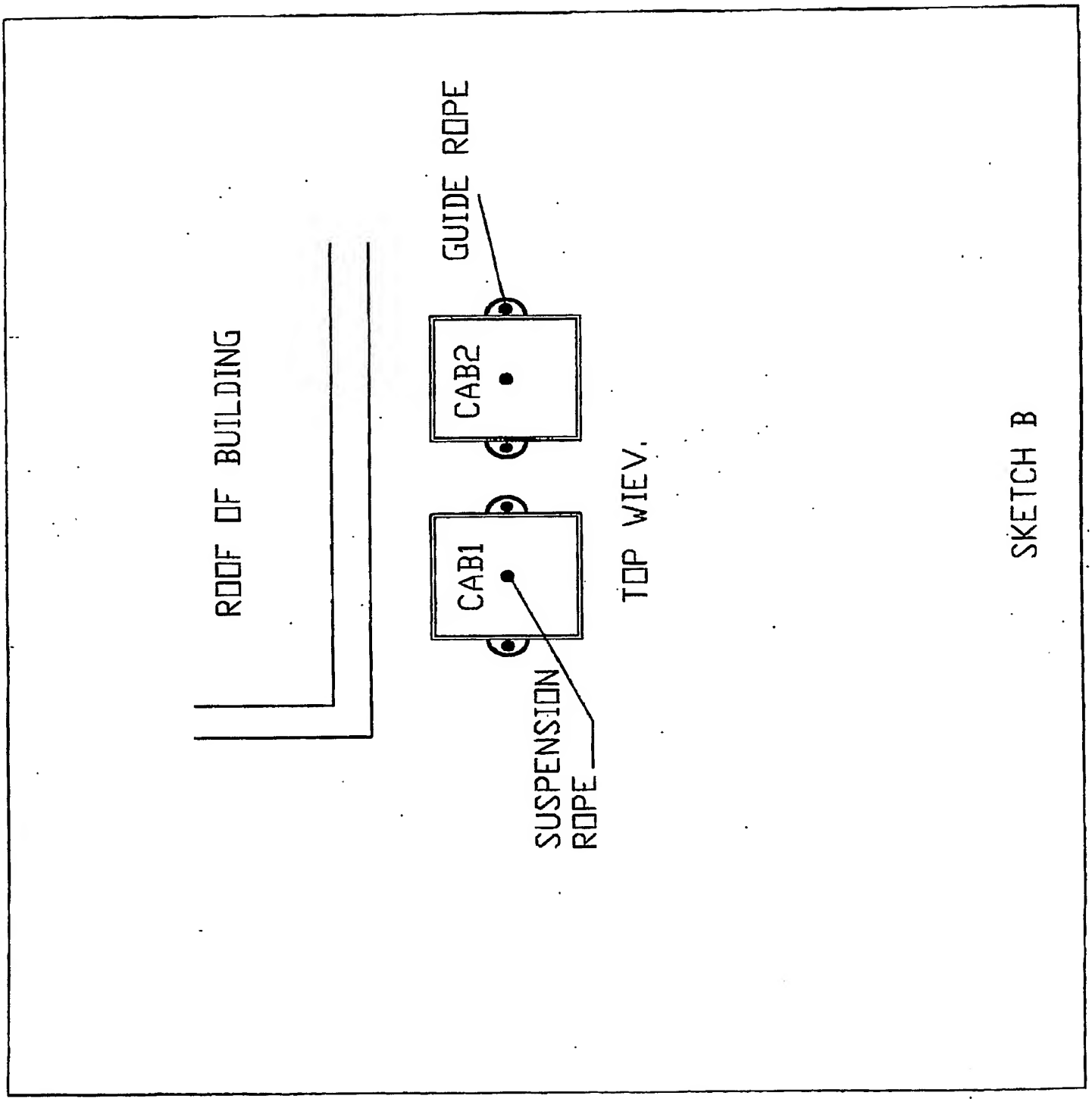
Therefore wireless communication sets will be permanently installed next to the machine and inside the cabin.

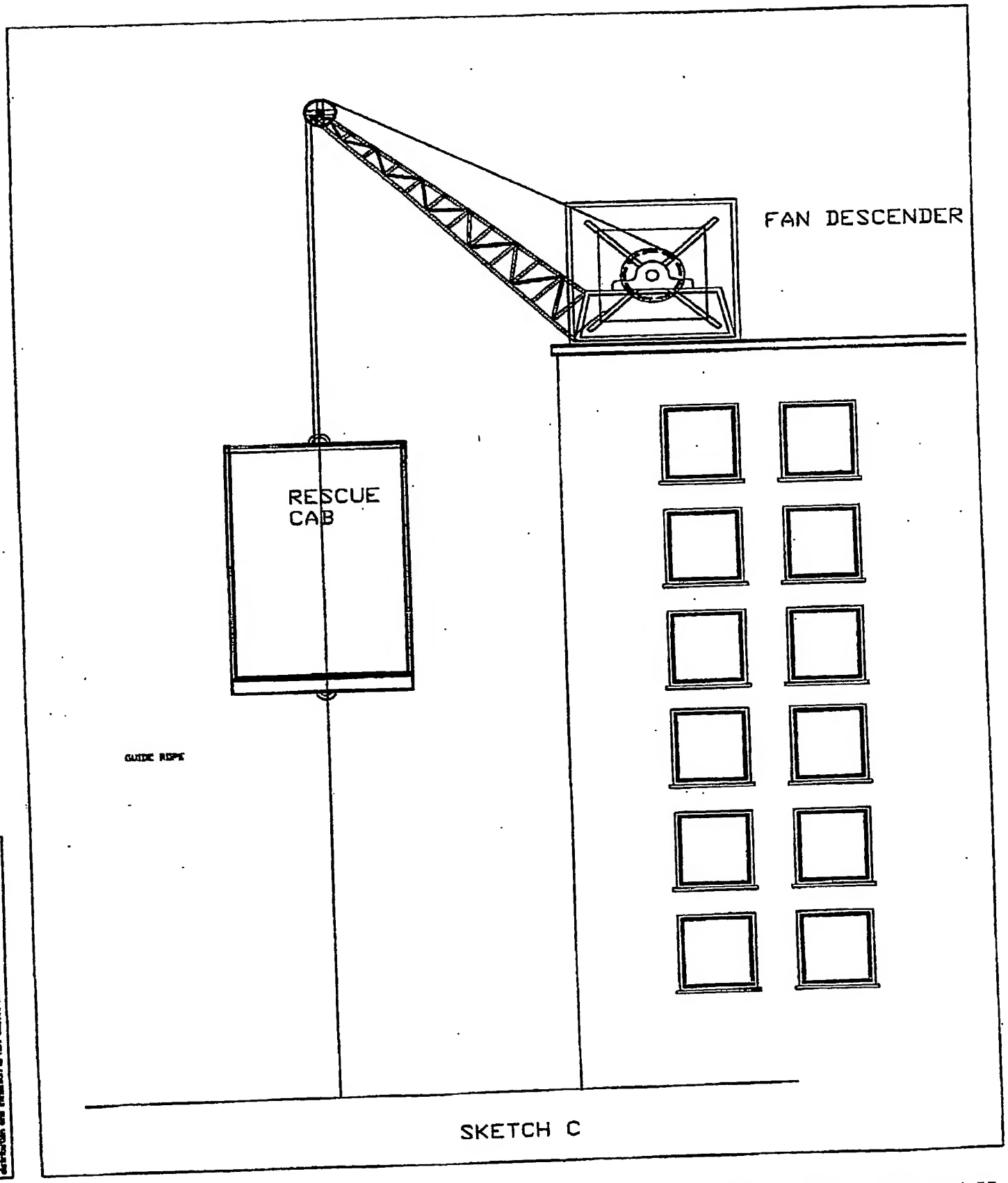
In addition – with the cabin or together with the lowering of the guiding ropes– a mobile wireless communication set will be taken down to the bottom rescue point.

Oren Meitus
9.2.2004



SKETCH A





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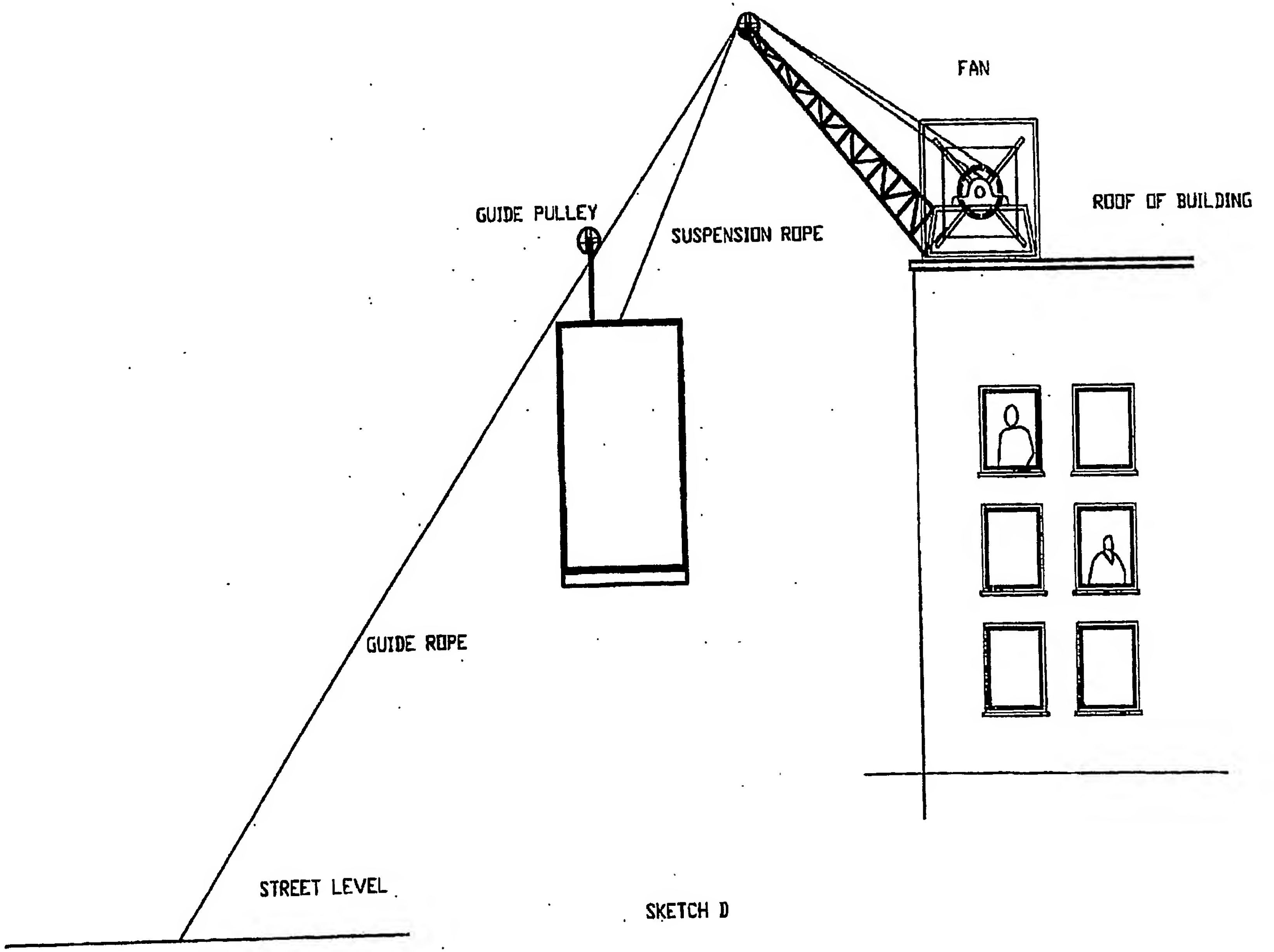

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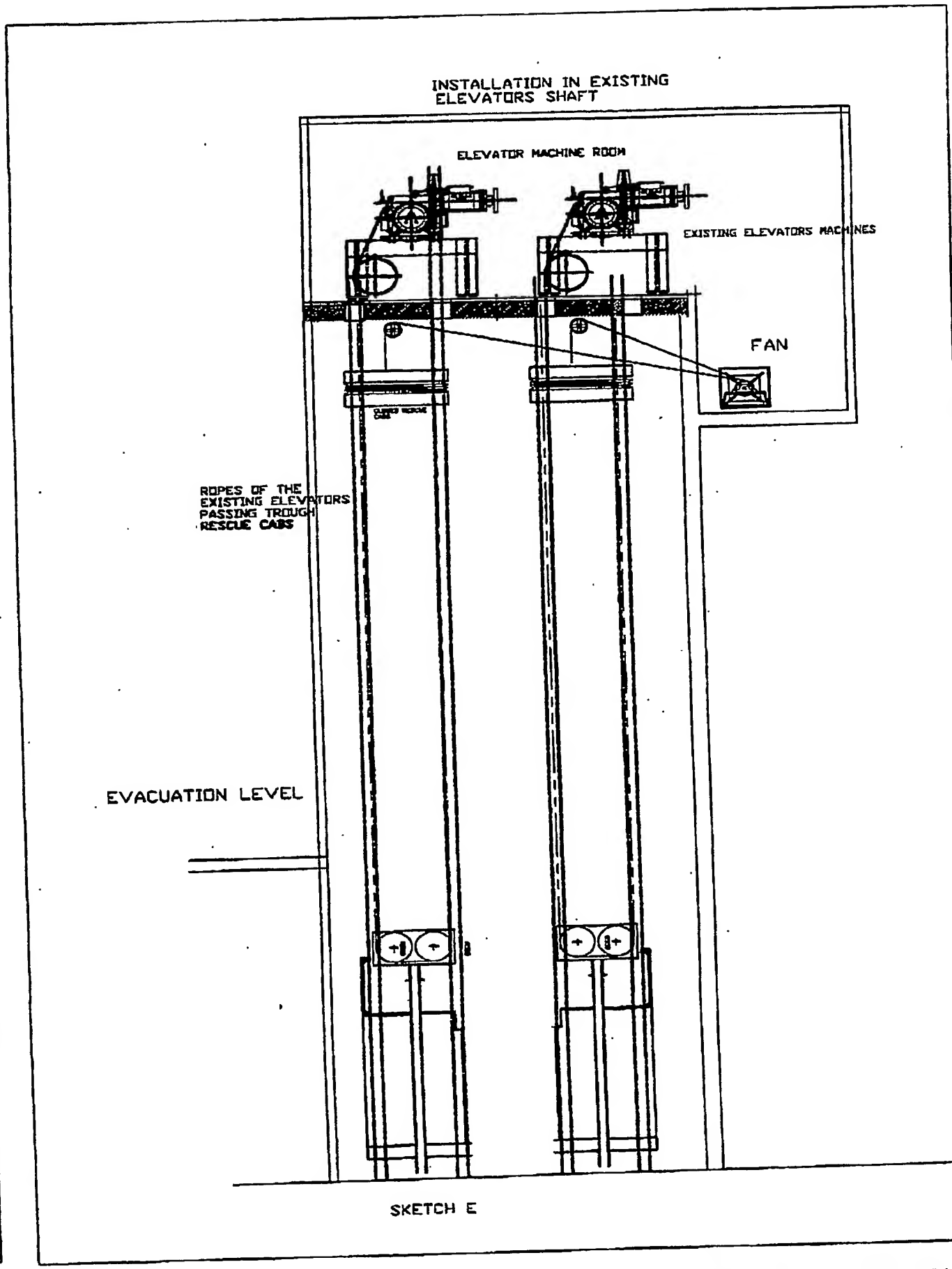
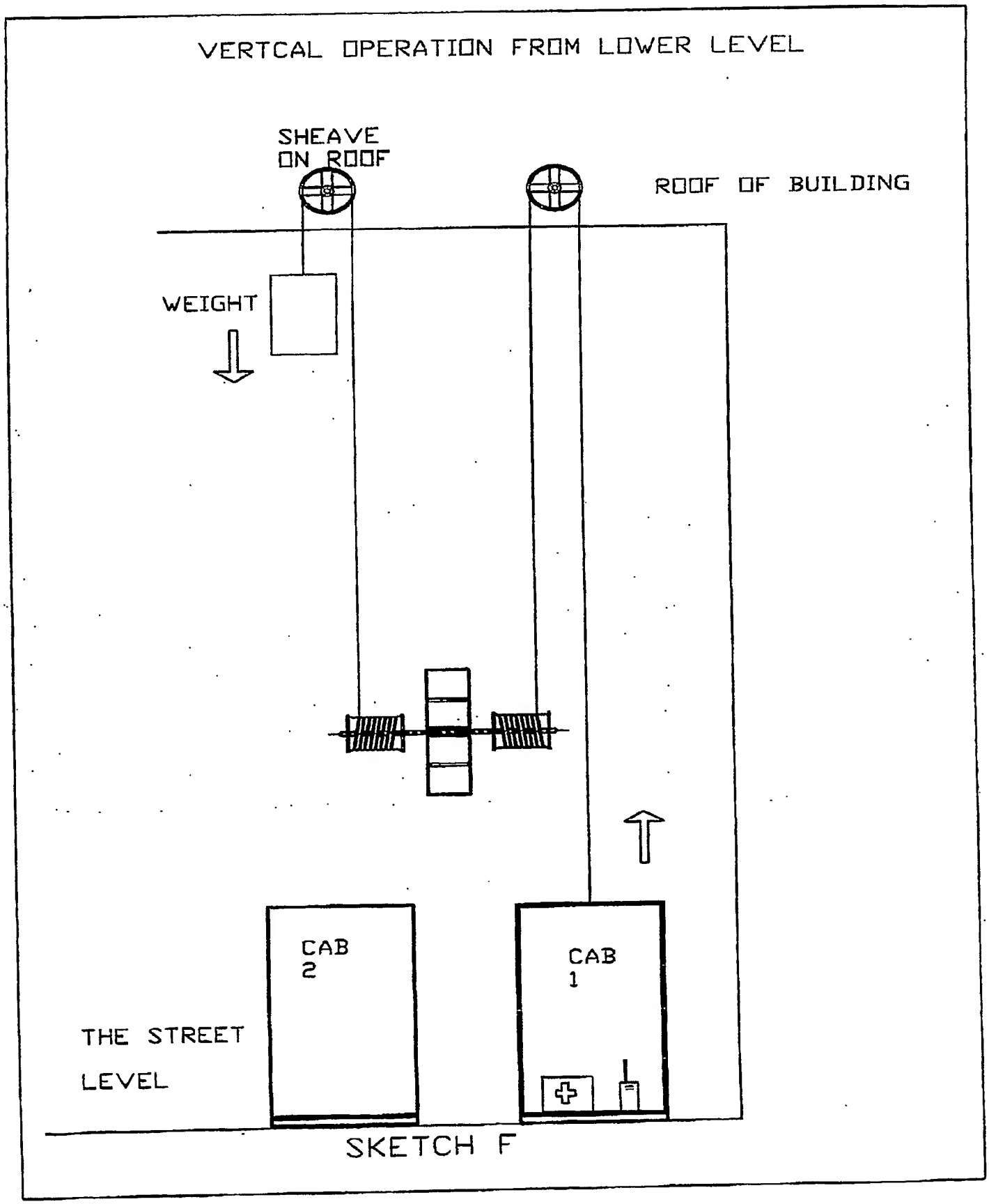
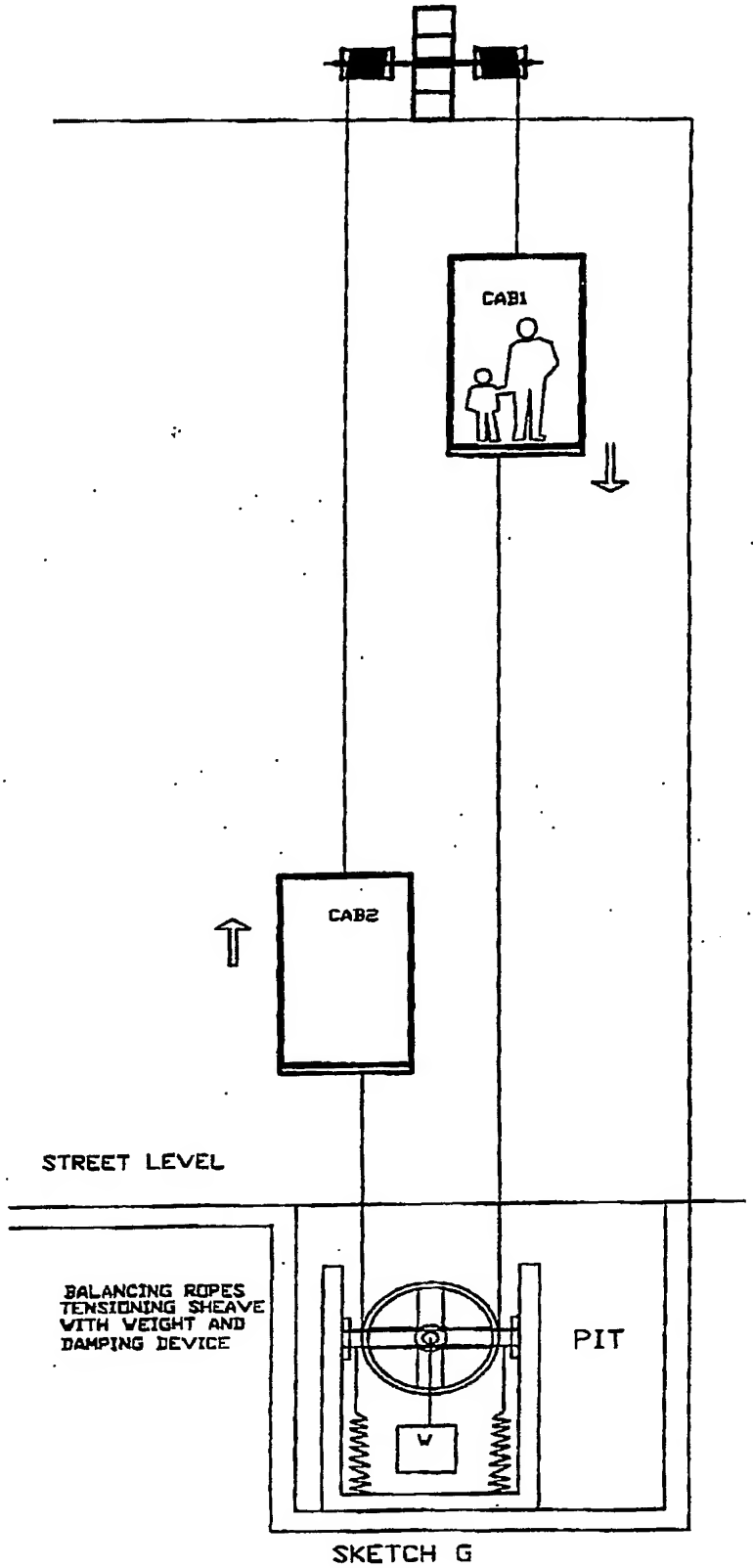
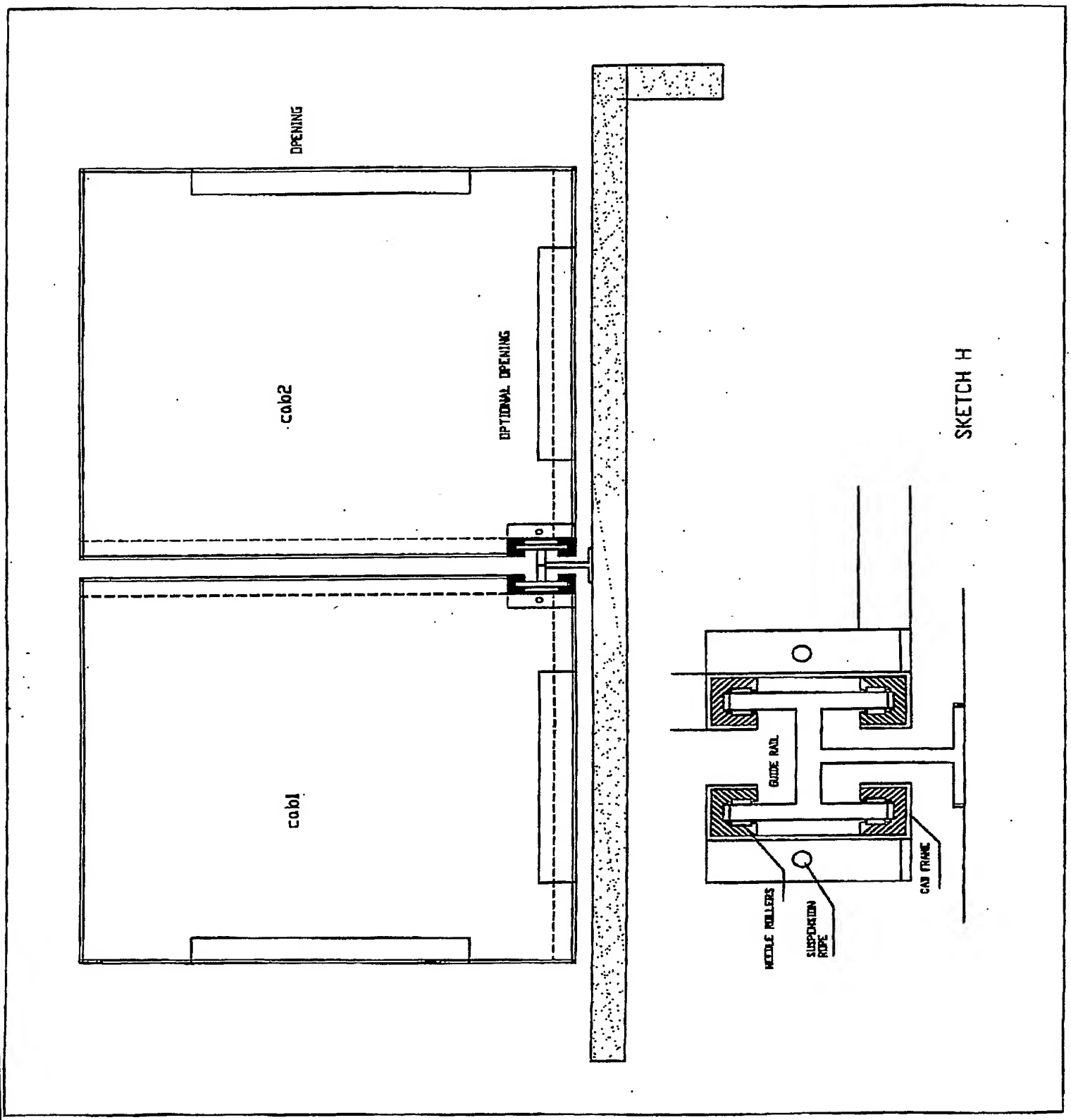


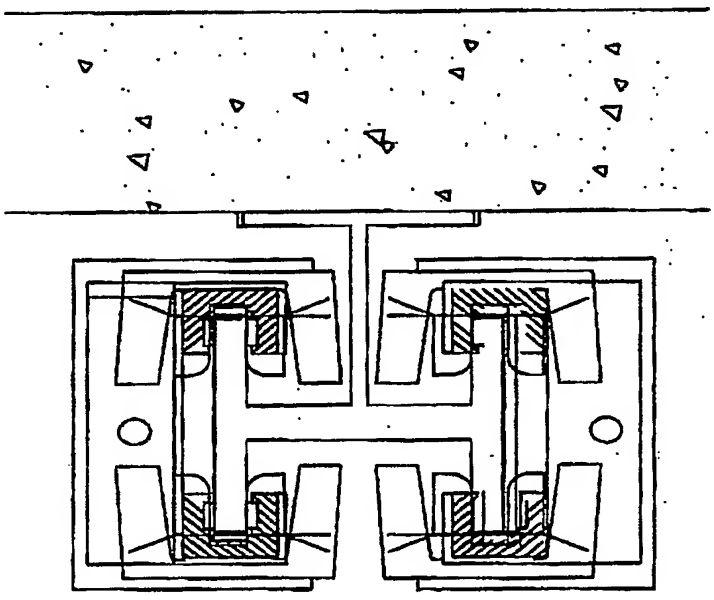


ROPE TENSIONING DEVICE



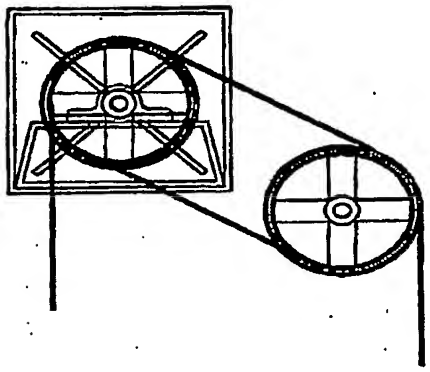
SKETCH G



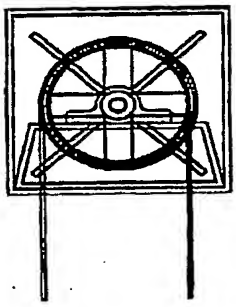


SAFETY GEAR APPLICATION

SKETCH I

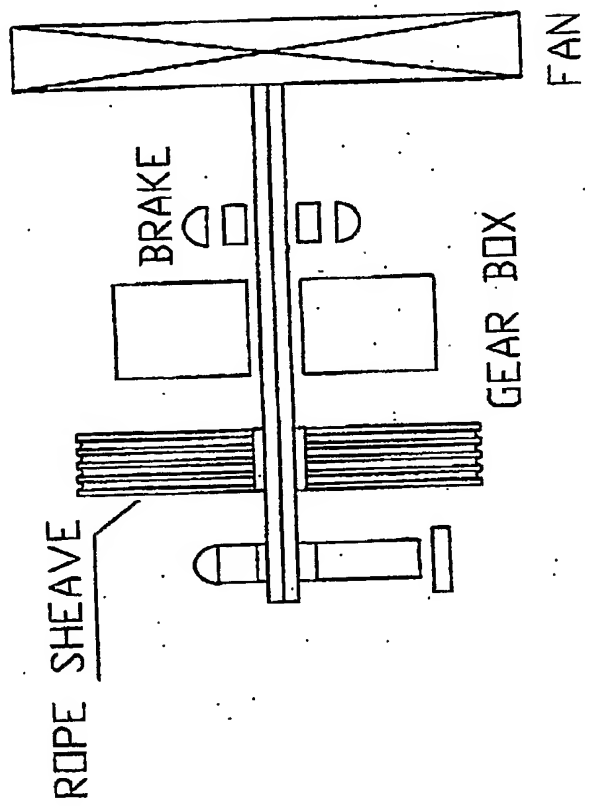


DOUBLE WRAP WITH DEFLECTION SHEAVE

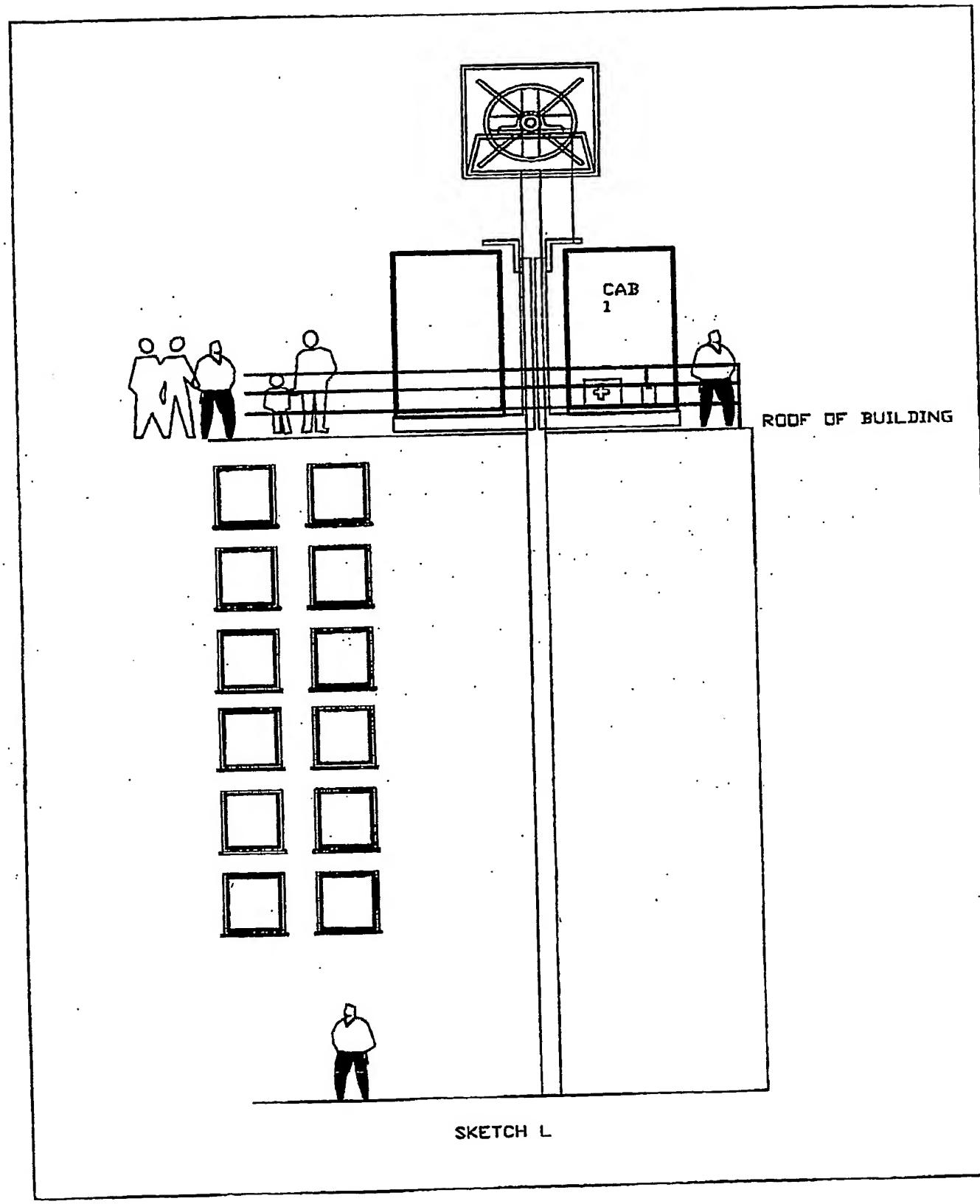


DOUBLE WRAP ON SINGLE SHEAVE

SKETCH J



SKETCH K



SKETCH L